

## **REMARKS**

Applicants initially wish to thank the Examiner for the telephonic interview conducted on May 2, 2008, and viewing a video that provides a brief description of the invention. During the interview, Applicants clarified how the invention is different from the prior art U.S. Patent No. 6,636,781 to Shen et al. (“Shen”), and discussed with the Examiner certain proposed claim amendments. Consequently, based on the interview, Applicants submit this Amendment and Response.

### **Amendments to Claims**

Claims 1-34 were pending in the application, among which claims 20-30 and 34 have been withdrawn from consideration.

Applicants hereby amend claims 1-12, 14-19 and 32, and cancel without prejudice claims 13, 31 and 33. Support for amendments to claims 1, 17 and 32 can be found at least in original claims 13, 31 and 33, and in paragraphs [0014], [0021] and [0043] of the originally filed application. Claims 2-12, 14-16, 18 and 19 are amended to make editorial changes and to correct claim dependency in light of the amendments to claims 1 and 17. Applicants submit that no new matter is introduced by these amendments.

After entry of this Amendment, claims 1-12, 14-19 and 32 will be pending for further examination. Claims 1, 17 and 32 are independent claims.

### **Claim Objections**

Claim 32 is objected to because the Office action indicates that the phrase “the node elements” and “the bond elements” would be better recited in the singular form. Claim 32 has been amended accordingly. Applicants submit that the objection to claim 32 has been rendered moot.

### **Rejections Under 35 U.S.C. § 102**

Claims 1-19, 31 and 33 are rejected under 35 U.S.C. 102(e) as allegedly being anticipated by Shen.

Without acquiescing to the rejections and to expedite allowance of the application, Applicants hereby amend independent claims 1 and 17 to further clarify the invention, and cancel without prejudice claims 31 and 33. As amended, independent claims 1 and 17 now recite a molecular modeling system for use in assembling a plurality of structural elements that include a node element and a bond element capable of being coupled to each other. In addition, either the node element (as recited in amended independent claim 1) or the bond element (as recited in amended independent claim 17) includes a communications device capable of providing data from the computational unit to an external computer system.

As explained in the specification and discussed during the telephonic interview with the Examiner, Applicants' invention provides an interactive molecular modeling system which users can construct and manipulate a molecular model and have the results of these manipulations provided in real time to a computer system for visualization and computational analysis. See Abstract of Applicants' originally filed application. The claimed invention, therefore, represents an improvement over conventional physical modeling tool kits which are static and non-interactive, and lack the capability to demonstrate dynamic characteristics. See paragraph [0005] of Applicants' originally filed specification. At the same time, the claimed invention represents an improvement over conventional virtual software tools which are difficult and unintuitive to manipulate. See paragraph [0007] of Applicants' originally filed specification. By including, among other components, the communications device recited in amended independent claims 1 and 17, Applicants' molecular modeling system has the ability to convey inputs, based on a user's manipulations of one or more structural elements, to an external computer system which can then perform computational analyses based on such data and provide the user with more complex information such as energetics, quantum mechanical effects, vibrational modes, crystal lattice construction, molecular dynamics and other characteristics not visible to the human eye. As a result, Applicants' molecular modeling system provides both the speed and ease-of-use characteristics of physical models, as well as the advanced computational and visualization tools available in computer-based virtual modeling programs.

Shen discloses a self-reconfigurable robotic system including a plurality of autonomous agents that can change its configuration and network topology to accomplish various tasks. See Shen, col. 3, lines 19-26. As described in Shen, each module in the reconfigurable robot is an

independent and autonomous system, which Shen distinguishes from classic robotics applications in which all motors and sensors are controlled by a single computer. See Shen, col. 8, lines 1-8. As such, while communication interfaces may be present among and/or within each module (see e.g., Shen, col. 4, lines 48-57), Shen does not disclose or suggest that any of these modules includes a communications device that is capable of providing data from a computational unit to an external computer system as required in the modeling system recited in amended independent claims 1 and 17 and their dependent claims.

Accordingly, Applicants respectfully submit that amended independent claims 1 and 17 and their dependent claims are novel over Shen, and request that their rejections under 35 U.S.C. 102(e) be reconsidered and withdrawn.

Rejections Under 35 U.S.C. § 103

Claim 32 is rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over Shen in view of U.S. Patent No. 5,947,745 to Tempelman (“Tempelman”).

The Office action cites Tempelman for the teaching of node elements and bond elements that can be coupled to form a portion of a molecular model. However, like Shen, Tempelman does not disclose or suggest node elements or bond elements that include a communications device that is capable of providing data from a computational unit to an external computer system. Because Tempelman does not cure the deficiencies of Shen, Applicants submit that the combined teachings of the cited references do not render claim 32 obvious. Accordingly, Applicants respectfully request that the rejection of claim 32 under 35 U.S.C. 103(a) be reconsidered and withdrawn.

## CONCLUSION

Applicants submit that based on the above amendments and remarks, claims 1-12, 14-19 and 32 are in condition for allowance and respectfully request that a Notice of Allowance timely be issued for this application. The Examiner is respectfully urged to contact the undersigned attorney with any questions regarding this paper or to schedule an interview to discuss any aspect of this application.

Respectfully submitted,

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Reg. No. L0415

Tel. No.: (617) 261-3215  
Fax No.: (617) 261-3175

/Karen K. Chan/  
Karen K. Chan  
Attorney for Applicants  
Kirkpatrick & Lockhart Preston Gates  
Ellis LLP  
State Street Financial Center  
One Lincoln Street  
Boston, Massachusetts 02111-2950